

### Abstract of the Disclosure

Provided are a composite polymer electrolyte for a lithium secondary battery that includes a composite polymer matrix structure having a single ion conductor-containing polymer matrix to enhance ionic conductivity and a method of manufacturing the same. The composite polymer electrolyte includes a first polymer matrix made of a first porous polymer with a first pore size; a second polymer matrix made of a single ion conductor, an inorganic material, and a second porous polymer with a second pore size smaller than the first pore size. The second polymer matrix is coated on a surface of the first polymer matrix. The composite polymer matrix structure can increase mechanical properties. The single ion conductor-containing porous polymer matrix of a submicro-scale can enhance ionic conductivity and the charge/discharge cycle stability.